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ABSTRACT

The paper reports on a study of the rate of language learning of 12 children aged 2 to 10 with severe to profound bilateral hearing losses. Intended to help deaf children learn spoken language at the same rate as average hearing Ss, the intervention stressed three qualities of linguistic information: (1) clarity, (2) appropriateness, and (3) adequate quantity. In addition, cued speech and the initiation of language teaching based on the normal developmental sequence were incorporated. Ss were divided into two groups: an oral-visual and an oral-visual plus cued speech group. Analysis of rates of progress revealed that deaf Ss learned language at or faster than the rate of hearing children on all five measures of comprehension of single word vocabulary and syntax, syntactical complexity through sentence production, and general knowledge. (CL)

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Intervention Procedures to Accelerate Rate of Learning

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INTERVENTION PROCEDURES TO ACCELERATE RATE OF LEARNING

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This paper will report on a five year project investigating rate of language learning which was carried out in a public day school program in Ascension Parish, Louisiana, United States of America. This project was begun in September, 1980. It involved twelve children who ranged in age from 2-8 to 10-11 at the initiation of the project. All of them had severe to profound bilateral sensorineural hearing losses and wore ear level hearing aids.

When rate of learning has been investigated, the results almost unanimously recognize that the rate for deaf children is extremely delayed when compared to that of hearing children. DiFrancesca (1972), using the results from the Stanford Achievement Test-Hearing Impaired Form, reported an average improvement of 0.2 grade levels per year of schooling, and Furth (1966) reported less than one grade level of improvement in a five year study of reading levels. It was decided to investigate the rate of learning spoken language (English) and to document this rate with language tests of comprehension and production which gave a language age score and which had been standardized on normal hearing children.

The goal for the project was that the deaf children would learn spoken language at the same rate as average hearing children. Therefore, using a language age scale representing the mean for hearing children, a deaf child should make twelve months progress in twelve months time.

This goal was deemed appropriate because language learning is basically a cognitive function and cognition is a function of the brain. Though these children had severe and profound hearing losses, their cognitive capacity for processing language information was intact and undamaged. Their ears, or the periferral auditory mechanism, would only transmit the messages. They would learn with their brain; and they were not brain damaged, only hearing damaged.

It was recognized, however, that deafness creates a tremendous learning problem. The problem, though, is basically one of transmission--transmitting information through the defective auditory system and not a problem of processing information in the language centers of the brain. Therefore, if the transmission problem could be overcome, the goal of having deaf children learn spoken language at the same rate as the average hearing child was indeed feasible.

To achieve this rate the following conditions were judged absolutely essential. The child must receive:

1. clear linguistic information
2. appropriate linguistic information
3. a sufficient quantity of linguistic information

Clear linguistic information is essential if the child's language processing is to be accurate. Ambigious auditory signals, such as /u/

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and /i/ which sound alike unless the listener can hear the second formant of /i/ or ambigious visual signals, such as mit, met, mat, and mut which look alike when lipread, preclude accurate processing of the information because the child cannot clearly discriminate one signal from the other. Getting clear signals to the brain is obviously a transmission problem. Providing clear information was accomplished using two intervention procedures. Children who retained enough audition to get clear linguistic information transmitted through residual hearing and speechreading were taught through an oral-visual communication system. Children who did not get clear linguistic information transmitted through residual hearing and speechreading were taught through an oral-visual plus Cued Speech communication system. With the addition of Cued Speech the auditory and/or visual signals which were ambigious to some children were clearly differentiated, which confirms the findings reported by Ling and Nicholls in 1982. The spoken language information was transmitted primarily through vision which circumvented the damaged auditory mechanism and ultimately allowed accurate language processing to be accomplished in the brain.

Appropriate linguistic information is essential if the child is to learn without being stifled by a language environment that is too simple or confused by language that is too difficult. This was provided by designing a language program based on the normal developmental sequence followed by hearing children as defined by Lois Bloom and Margaret Lahey in their book Language Development and Language Disorders. This semantically based sequence identifies significant levels of language development from single words through complex sentences and covers approximately four to six years of language learning. The program was used with all the children and included structured language lessons, prompted or semi-structured lessons, and opportunities for spontaneous language use.

A sufficient quantity of linguistic information is essential if the child is to have the input from which to form hypotheses to test in his environment. Though we do not know exactly what quantity is a sufficient quantity, the necessity of providing an abundant quantity of linguistic information was addressed at regular parent training sessions with the intent of uniting home and school and thereby insuring that a sufficient quantity of linguistic information was available to the child. Cued Speech classes were provided for the parents whose children learned through that system, and they were strongly urged to cue throughout the child's waking hours.

To summarize, there were two major changes made in the previously used intervention procedures. They were the addition of Cued Speech and the initiation of language teaching based on the normal developmental sequence followed by hearing children. Cued Speech provided clear information and the language teaching provided appropriate information for each child's level of language development. Intensive parent training continued as before but with the addition of Cued Speech classes.

In September, 1980, twelve children who had normal intelligence and no other handicapping conditions were selected for this project.

Six of these children who had profound hearing losses were judged to need Cued Speech in addition to oral-visual input. The decision to use Cued Speech was based primarily on the fact that after several years in traditional oral programs the children were functioning a great deal below their chronological ages, and their rate of learning was significantly less than that of hearing children.
A seventh child was added to this group in September, 1981.

The five remaining children who had severe or high frequency losses were judged to be receiving a sufficient quantity of clear linguistic information transmitted by traditional oral-visual means. This judgment was based on the fact that after several years in traditional oral programs the children appeared to be making satisfactory progress.

The separation of the children into an oral-visual and an oral-visual plus Cued Speech group was the major distinguishing characteristic of the groups because all the children received the same type of developmental language instruction and because all the children's parents had the same opportunity outside of school to provide an increased quantity of language information. Also all the children continued to receive auditory training and intensive speech therapy during the time of the project. To this author's knowledge, this is the first time that rate of language learning with and without Cued Speech has been compared.

The children were assessed at the beginning and end of each school year using language tests standardized on normal hearing children which gave a language age score. Their language age scores were plotted on a graph having a diagonal line which marked the intersection of twelve months progress in twelve months time.

The tests which were used were:
Peabody Picture Vocabulary Test, initial version form A and revised version form L. These gave two measures of the comprehension of single word vocabulary.
Test of Auditory Comprehension of Language and the grammatic understanding subtest of the Test of Language Development--Primary Level. These were combined to give one measure of the comprehension of syntax.
Developmental Sentence Scoring to assess syntactical complexity through sentence production, and the
Woodcock-Johnson Psycho-Educational Battery, general knowledge subtest to assess general information.

Rate of progress was measured from the child's initial score on the test regardless of his chronological age. For example, one of the children was 7-9 when she first took the PPVT-A. Her initial score was 2-6. Rate of progress was measured from 2-6, not from 7-9.

The results for the oral-visual, the oral-visual plus Cued Speech, and the combined group on each test are given below. The combined group simply refers to the group formed by the other two groups when they were combined into one group.

PPVT--Initial Version--Form A--as shown in Figure 1
All twelve children took the test for four or five years.
Individually, three children learned at a rate faster than that of hearing children--one from the oral-visual group and two from the Cued Speech group.
The mean rate of learning for the oral-visual, the Cued Speech, and the combined group was slower than that of hearing children.

PPVT--Revised Version--Form L--as shown in Figure 2
All twelve children took the test for four years.
Individually, three children learned at a rate faster than that of hearing children--all three from the Cued Speech group.
The mean rate of learning for the oral-visual, the Cued Speech, and the combined group was slower than that of hearing children.

TACL/TOLD--as shown in Figure 3
All twelve children took the test for three to five years.
Individually, six children learned at a rate faster than that of hearing children--two from the oral-visual group and four from the Cued Speech group.
The mean rate of learning for the oral-visual, the Cued Speech, and the combined group was faster than that of hearing children.

DSS--as shown in Figure 4
Eight of the twelve children took the test for two to four years.
Individually, five children learned at a rate faster than that of hearing children--one from the oral-visual group and four from the Cued Speech group.
The mean rate of learning for the oral-visual, the Cued Speech, and the combined group was faster than that of hearing children.

W-J Psycho-Educational Battery--General Information subtest--Figure 5
Seven of the twelve children took the test for three years.
Individually, six children learned at a rate faster than that of hearing children--two from the oral-visual group and four from the Cued Speech group.
The mean rate of learning for the oral-visual, the Cued Speech, and the combined group was faster than that of hearing children.

In the Cued Speech group, two children learned at a rate equal to or faster than hearing children on all five measures, two children learned at a rate equal to or faster than hearing children on three of the five measures, one child learned faster on one of the five measures, one child learned faster on one of three measures, and one child did not learn faster on any of three measures.

In the oral-visual group, two children learned faster than hearing children on two of the five measures, two children learned faster than hearing children on one of three measures, and one child did not learn faster on any of four measures.

These results indicate that it is possible for deaf children to learn language at or faster than the rate of hearing children when the essential factors are present in their environment. Certainly, the fact that several of the children were much older chronologically than their functional le6el--and therefore cognitively mature--may have helped them learn at a rapid rate. This characteristic is common to many severely language delayed remedial children found in programs for the deaf and can be used to their advantage. There was no evidence

gleaned in this project to indicate that older deaf children cannot learn at the same rate as hearing children. Certainly, our population was small in number, but that too is characteristic of many programs for the deaf and should not discredit the importance of the results.

As important as it is that two children learned faster than hearing children on all five measures, it is even more important that the mean rate of learning for the oral-visual, the Cued Speech, and the combined group was equal to or better than that of hearing children on three of the five measures--sqntactical development, production of sentences, and general information. These results are not characteristic of results which often cite the progress of one outstanding child, which cite mean improvement but do not compare that improvement to hearing children, or certainly to the results that were cited at the beginning of this paper. These results are the product of effective intervention procedures which provided a sufficient quantity of clear, appropriate linguistic information.

It was not the intent of this project to establish either oral-visual or oral-visual plus Cued Speech as the superior communication system, but rather to recognize that both are highly effective intervention tools when properly used. Six of the seven children who used Cued Speech had been in other deaf education programs for three to nine years. Their language age scores at the initial testing ranged from two to six qmars below their chronological ages. Because of these conditions, it is extremely unlikely that they would have achieved this rate of progress without the addition of Cued Speech to their intervention program. What this project did establish was that severely and profoundly deaf children using both systems could learn at the same rate as hearing children.

The results also indicate that it is time for deaf educators to seriously evaluate the effectiveness of traditional intervention procedures. One cannot discount or ignore the effectiveness of either Cued Speech or the developmental language program modeled after hearing children even though neither one is widely used in programs for the deaf at this time.

In conclusion, it is recommended that these procedures be studied further in order to identify even more precise intervention technics. However, the results of this project have confirmed the initial analysis that given a sufficient quantity of clear, appropriate language information, a deaf child with normal intelligence and no other handicapping conditions can learn language at the same rate as the average hearing child.

This is a reprint of a paper presented at and published by the International Congress on the Education of the Deaf, Manchester, England, August, 1985.

REFERENCES

Bloom, L., and Lahey, M. 1978. Language Development and Language Disorders. John Wiley & Sons, Inc., New York.

DiFrancesca, S. 1972. Academic Achievement Test Results of a National Testing Program for Hearing Impaired Students. United States. Spring, 1971, Series D, no. 9. Gallaudet College. Office of Demographic Studies, Washington, D.C.

Furth, H. 1966. A comparison of reading test norms of deaf and hearing children. Am. Ann. Deaf 111:461-462.

Nicholls, G. and Ling, D. 1982. Cued speech and the reception of spoken language. J. Speech Hear. Res. 25:262-269.

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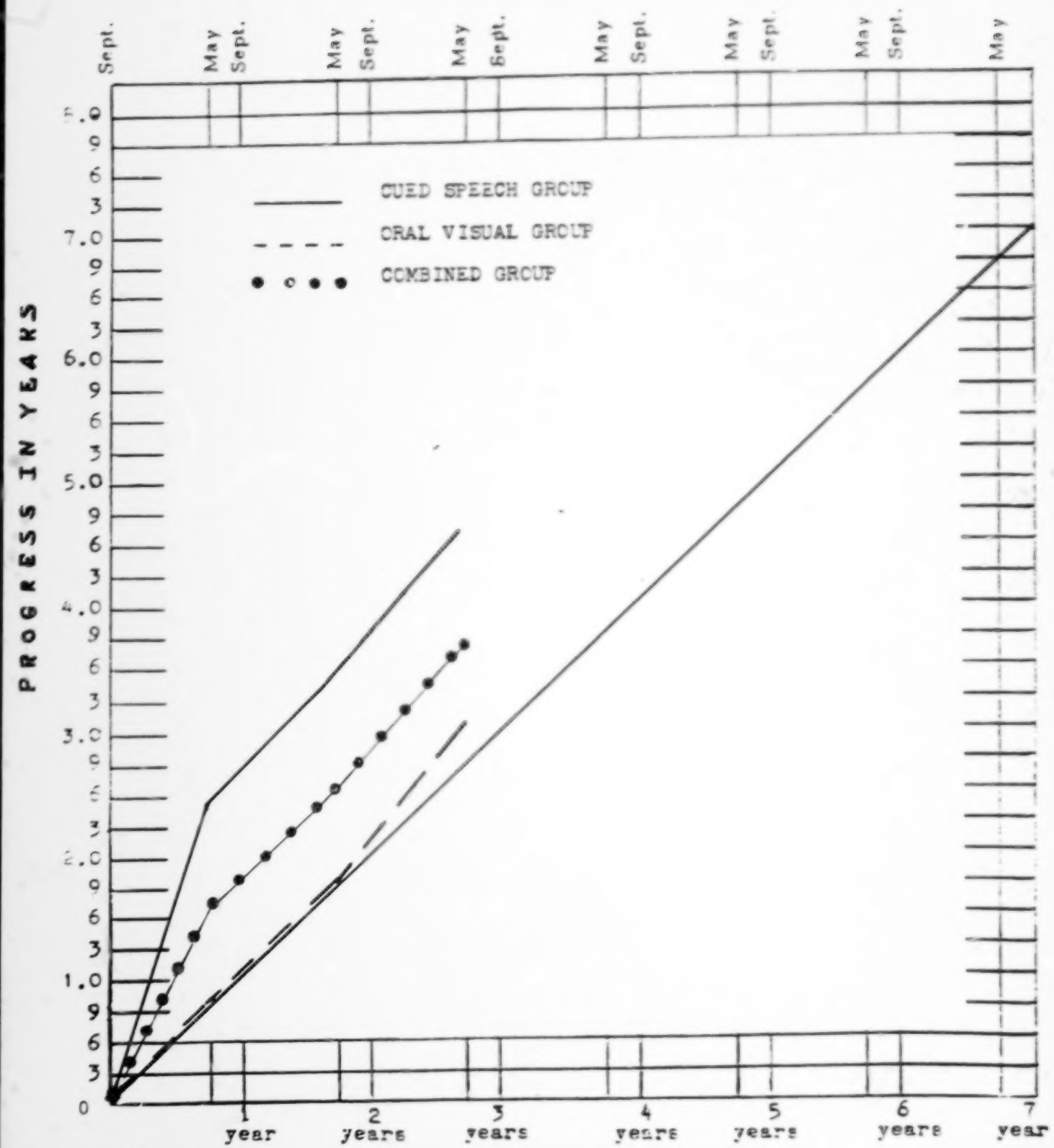
W. J. GENERAL INFORMATION

MEAN

RATE OF PROGRESS



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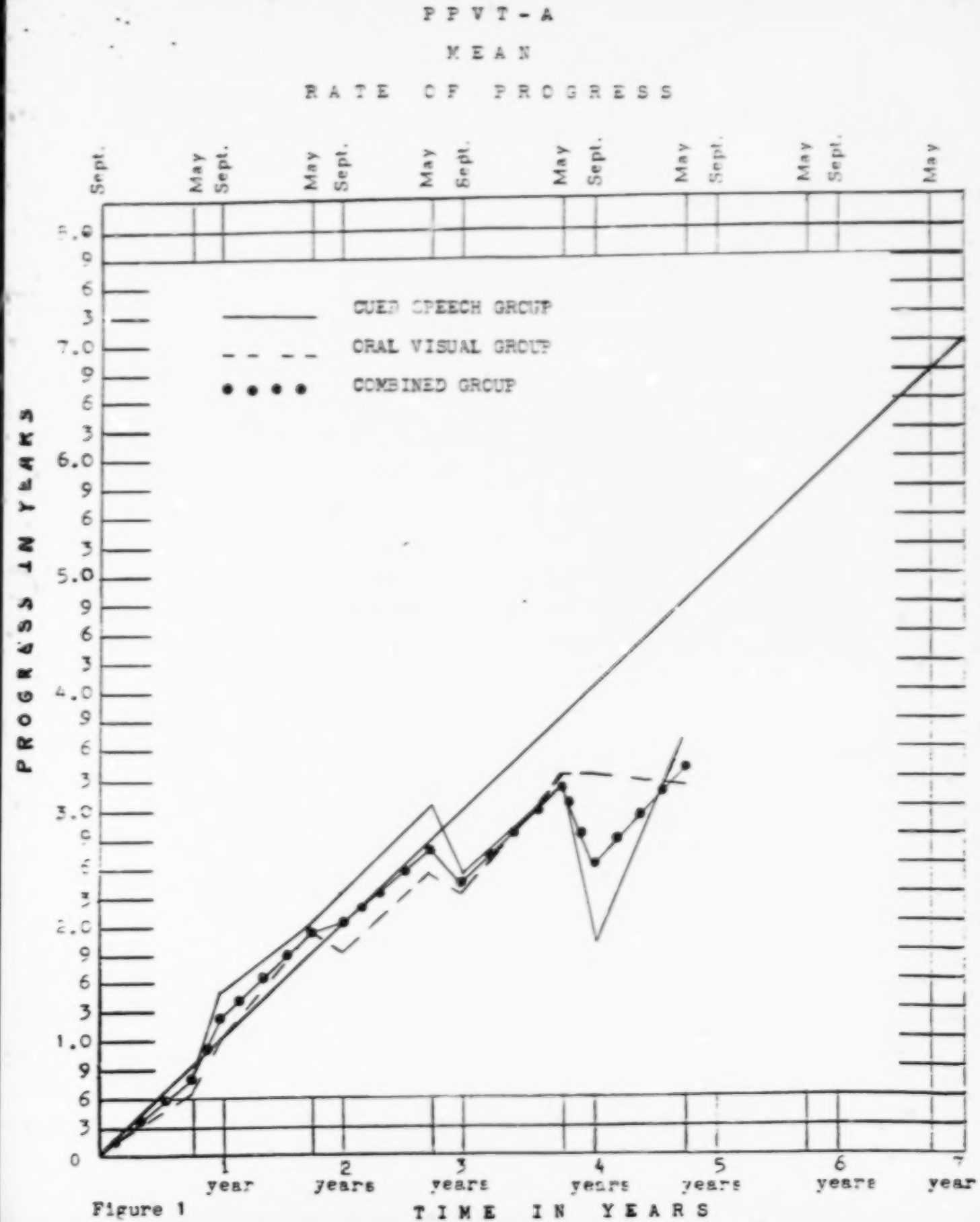
P P V T - A
M E A N
R A T E O F P R O G R E S S
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
CUED SPEECH GROUP
ORAL VISUAL GROUP
COMBINED GROUP
PROGRESS IN YEARS
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
1 year
2 years
3 years
4 years
5 years
6 years
7 year
T I M E I N Y E A R S

Figure 1

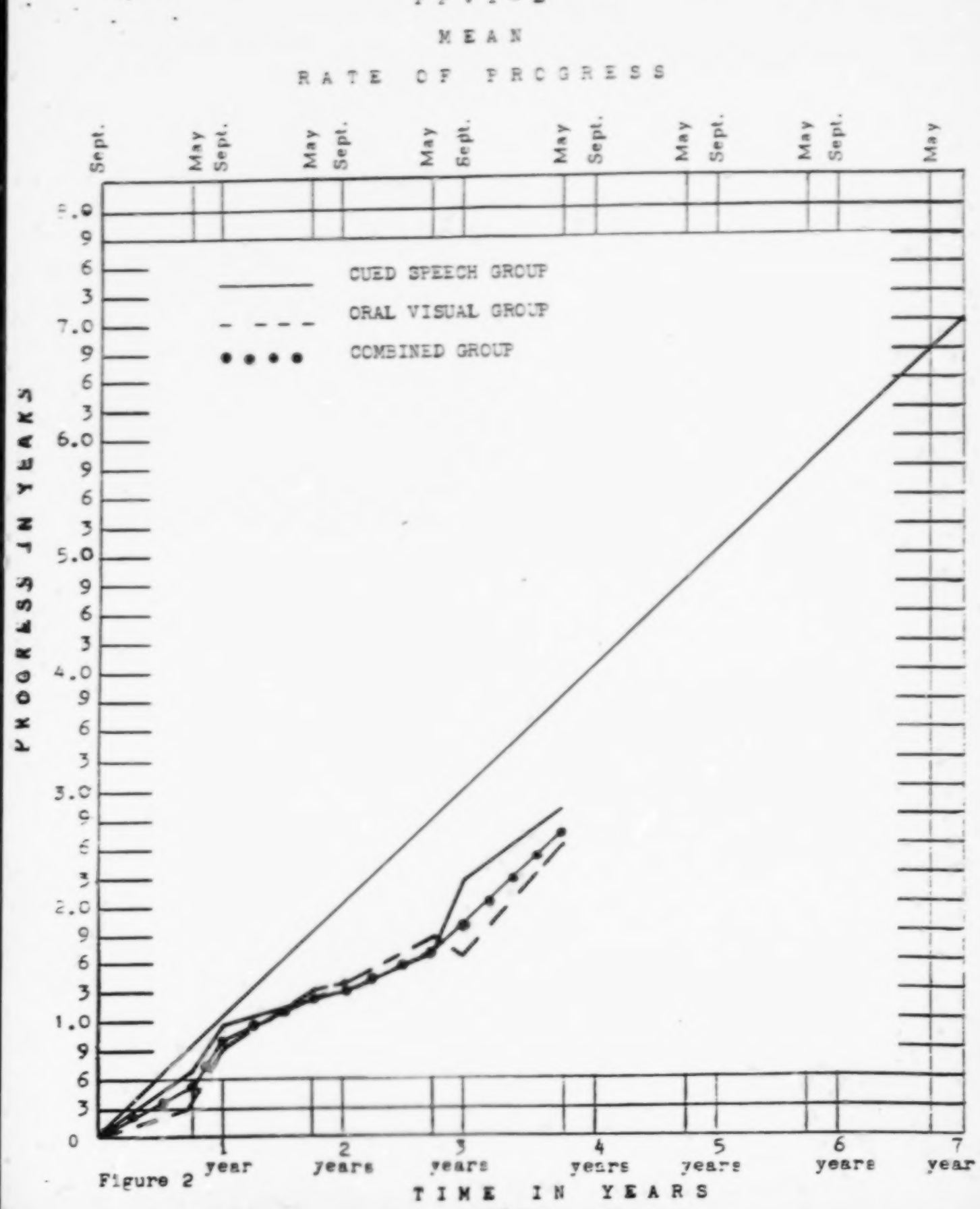
PPVT-L
MEAN
RATE OF PROGRESS
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
CUED SPEECH GROUP
ORAL VISUAL GROUP
COMBINED GROUP
PROGRESS IN YEARS
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
1 year
2 years
3 years
4 years
5 years
6 years
7 year
TIME IN YEARS

Figure 2

TACL/TOLD

MEAN

RATE OF PROGRESS

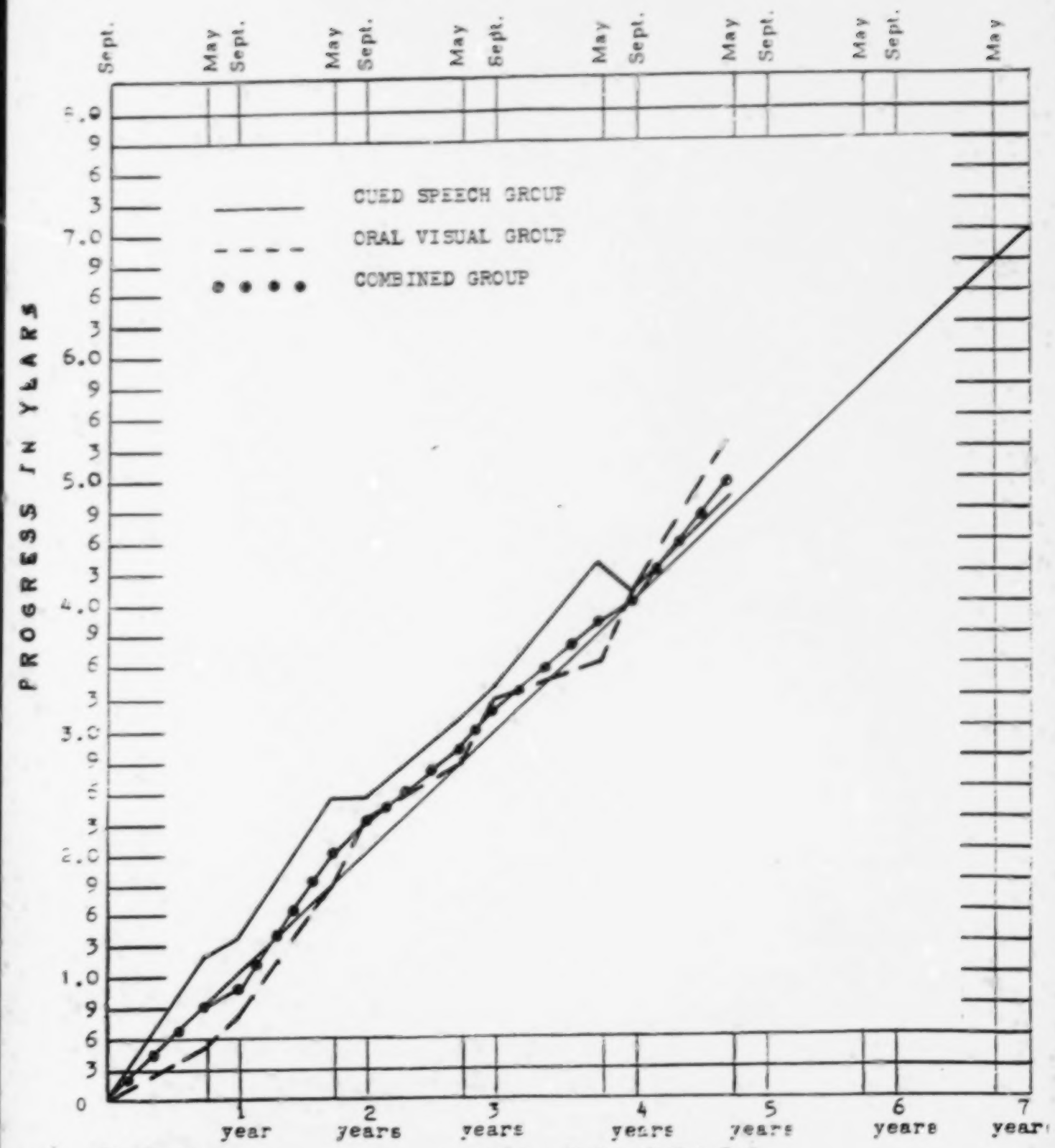

Figure 3

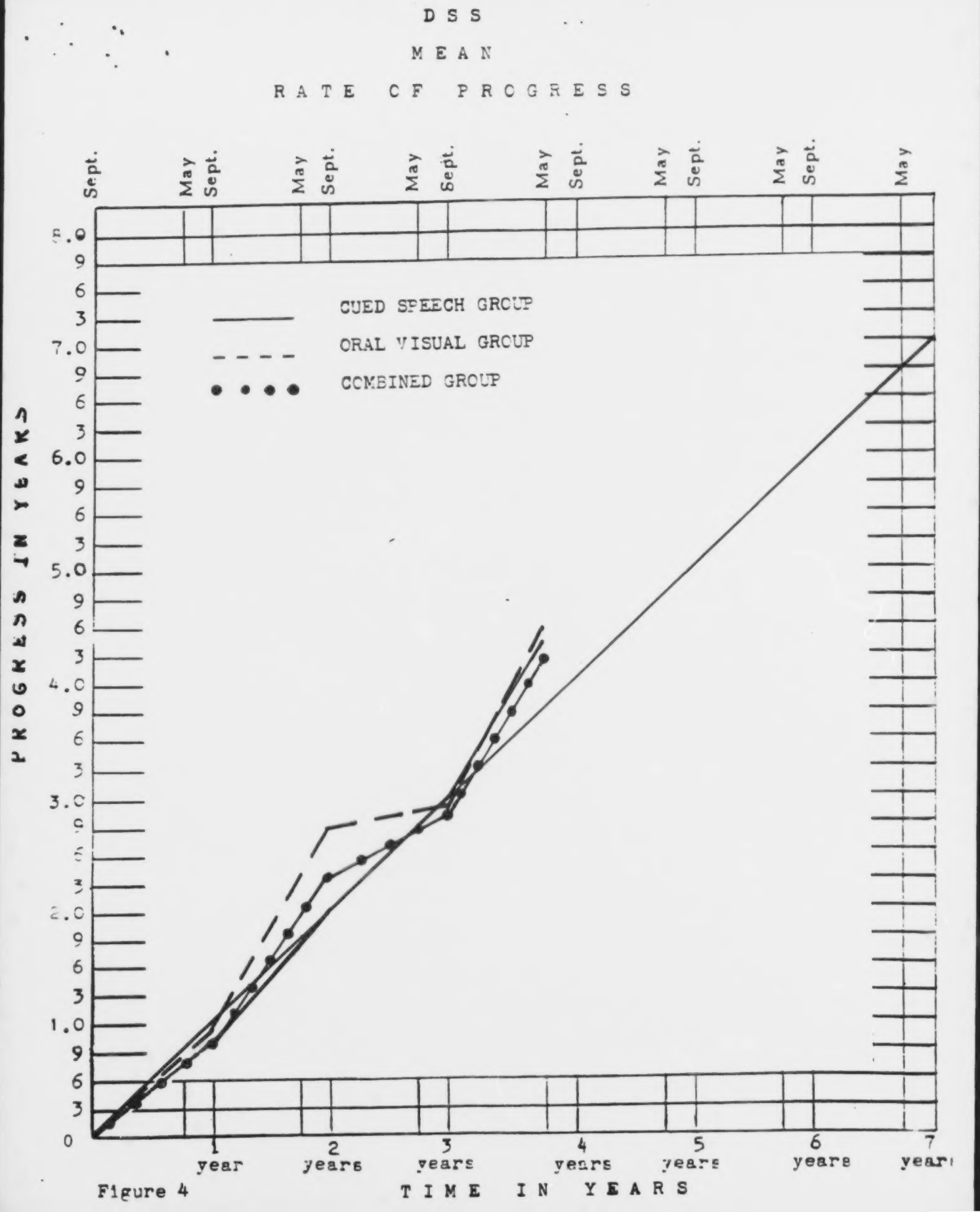
DSS
MEAN
RATE OF PROGRESS
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
Sept.
May
CUED SPEECH GROUP
ORAL VISUAL GROUP
COMBINED GROUP
PROGRESS IN YEARS
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
1 year
2 years
3 years
4 years
5 years
6 years
7 years
TIME IN YEARS

Figure 4

Paper presented at the Annual Convention of the
Council for Exceptional Children
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